REMARKS

Claims 13-19 were examined in the Office Action mailed September 14, 2007. The claims stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,277,301 to Fenty ("Fenty") in view of U.S. Patent No. 5,228,557 to Lago ("Lago"), in further view of U.S. Patent No. 3,783,777 to Killen ("Killen").[1]

Claims 13-14 and 16-19 have been amended to more particularly recite the configuration of the spacer members and the arrangements of the transfer conveyer, heat insulated room, and drive shaft, sprocket and motor locations. Claim 15 has been canceled, without prejudice to the subject matter therein.

In the invention recited in amended claim 13, the inside space 23[2] of the cylindrical space formed inside the spiral pile of the transfer conveyer 100 can be utilized as the space for installing the refrigerating machine 25, resulting in efficient use of cold heat as the foodstuff on the transfer conveyor is cooled by the cold heat flowing radially from the inside space of the spiral pile. *See, e.g.*, Fig. 7.

Contrary to the statement in the Office Action that Fenty teaches a refrigerating machine 22 installed in a space formed inside the spiral of its transfer conveyor, as shown in Fenty Fig. 1 the refrigeration machine of Fenty is

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[1] The Applicant notes that claims 13-19 continue to be identified as anticipated under 35 U.S.C. § 102(b) by Fenty; in view of the remarks in the Applicant's previous response noting the Examiner's express statement that Fenty does not disclose features of the present invention, the Applicant presumes that the inclusion of the § 102(b) rejection at lines 3-4 of page 3 of the pending Office Action is a typographic error.

[2] For illustration purposes, reference is made to the example embodiment in the present figures, using the reference labels thereon.

not installed in an inside space formed *inside* the spiral, but is located above the inside space. Further, the refrigerating machine of Fenty is not plate type heat exchangers disposed radially for flowing cold heat radially outwardly from the space inside the spiral. Thus, Fenty does not teach or suggest claim 13's flexible foodstuff transfer installation in which "a refrigerating machine having plate type heat exchangers disposed radially is installed in a space inside the spiral of the transfer conveyer for flowing cold heat radially outwardly to cool the foodstuff transferred on the transfer conveyer."

As a separate matter, Fenty's spacer members (58, 60) are not formed in the manner recited in claim 13 (and shown, for example, in present Fig. 3) to have an offset outward in a lateral direction perpendicular to the transfer direction, with the distance of the offset being set so that the plate thickness of the inside-part is accommodated in the space defined between the inside surface of the outside-part and the extension of the inside surface of the inside-part when the transfer pieces are moving relative to each other. This feature of the present invention ensures the transfer pieces can move smoothly throughout the transit of the transfer pieces around the conveyer, with each transfer piece being guided by the adjacent transfer pieces. In contrast, as shown in Fenty Fig. 3, Fenty's elements 66 and 72 are *flat* members without any offset features in the lateral direction perpendicular to the transfer direction. The flat plates also result in the need for Fenty's flat planar surfaces to be arranged in alternating, overlapping fashion, doubling the required number of spacer members,

increasing costs for materials and assembly and making the structure more complex as compared to the present invention.

A further feature recited in claim 13 not taught or suggested by Fenty is the arrangements for the transfer pieces to be self-supporting for vertical stacking in the spiral pile. The spacer members of claim 13 include a contact face bending outward at both upper and lower ends of each spacer member, so that the transfer pieces can be stacked on one another when the spacer members come into plane contact to each other. These broad load-bearing surfaces ensure the vertical load exerted by each transfer piece in the spiral on the upper end of the spacer member below it is supported by a plane contact surface, thereby decreasing contact pressure and providing a significantly greater wear resistance.

Fenty simply contains nothing suggesting claim 13's spacer members, as this reference does not teach or suggest *any* sort of vertical stacking of transfer pieces upon one another. As can be seen in Fenty Fig. 3, the spacer members 66, 72 of Fenty have no contact face bending outward at their upper ends whatsoever, and therefore the Fenty transfer pieces could not be stacked (at least not without unacceptable high contact pressures and an unacceptable lack of lateral stacking stability). In fact, the Fenty members are not stacked upon each other, but rely on a separate framework containing rails which support each level of the Fenty spiral conveyer section from *below* each section. Fenty therefore does not teach or suggest claim 13's spacer members which have "*a contact face bending outward ... formed at both of upper and lower ends of the*

spacer member so that said transfer pieces comprising said pair of spacer members made of plate material can be *piled in a vertical spiral* by allowing an upper side positioned spacer member to *rise on a spacer member positioned right under* said upper side positioned spacer member *via said bending contact face*."

With regard to amended claim 14, this claim now recites that the inside chain and outside chain are looped respectively over an inside sprocket and an outside sprocket, *outside* of the heat insulated room. This feature allows the transfer pieces to be smoothly advanced to the spiral by the inside chain and the outside chain connected to the drive shaft at the entrance portion of the spiral pile, while the drive shaft is connected to a drive motor that remains outside the heat insulated room. This feature is not suggested by any of the cited references.

Claim 16 recites that, *inter alia*, "a speed change gear drive is mounted in a drive shaft located at an entrance of the spiral." Fenty does not teach or suggest a chain drive system with a speed change gear drive, let alone such a drive in the recited arrangement. By mounting a speed change gear drive in a drive shaft installed at the entrance of the spiral pile, torque of the speed gear drive can be absorbed smoothly in the drive shaft of the present invention.

In the pending Office Action, it is maintained that it would have been obvious to provide the tension springs of claim 18 to pull each tension pulley in order to tension the chains. As amended, claim 18 recites that the tension pulleys are each "looped over by the inside chain and outside chain at an upstream of the transfer direction from an entrance of the spiral" and "at the other side, being looped over and inside sprocket and an outside sprocket each

connected to a drive shaft," with the tension springs each pulling each tension pulley "for tensioning the chains in a tangential direction to the spiral." By this structure, the chains are tensioned in a *tangential* direction to the spiral, so that the occurrence of slack in the inside chain and outside chain is evaded. The Applicant respectfully submits that this configuration was not an obvious approach to providing the desired chain tension, being neither suggested in the cited references nor otherwise obvious to one of ordinary skill in the art.

Finally, while Fenty discloses a motor installed outside of a heat insulated room (24, 26, 28), Fenty does not teach or suggest the feature of claim 19 that "a way-out portion of the transfer conveyer is disposed at one side of the heat insulated room ... so that the transfer conveyer extends to be looped over sprockets at an outside of the heat insulated room, and the transfer conveyer also extends to an outside of the heat insulated room from an entrance portion of the heat insulated room opposite of the way-out portion to the looped over sprockets at the outside of the heat insulated room, and wherein one pair of the sprockets is connected to an auxiliary motor."

Because the Fenty reference does not teach or suggest all of the features of the present invention for which it is cited nor other limitations of the amended claims, and further because the Lago and Killen references do not cure Fenty's deficiencies, claims 13-14 and 16-19 are patentable over these references under § 103(a). Accordingly, reconsideration and withdrawal of the pending § 103(a) rejections is respectfully requested.

CONCLUSION

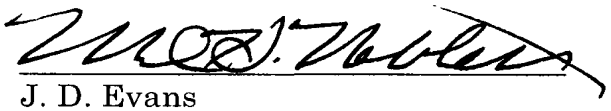
In view of the foregoing amendments and remarks, the Applicant submits that claims 13-14 and 16-19 are in condition for allowance. Early and favorable consideration, and issuance of a Notice of Allowance for these claims is respectfully requested.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned at (202) 624-2845 would be appreciated since this should expedite the examination of the application.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #037297.55537US).

Respectfully submitted,

December 6, 2007



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